

# High IP3 Frequency Mixer

## MCA-3851FH+

Level 17 (LO Power+17 dBm) 1670 to 3850 MHz



### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
LO & RF Power	20 dBm

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

LO	10
RF	5
IF	3
GROUND	1,2,4,6,7,8,9

### Features

- wideband
- excellent IP3, 30 dBm typ.
- excellent L-R isolation, 40 dB typ.
- excellent 1dB compression
- industry standard foot print
- LTCC design for excellent temperature stability, performance repeatability and small size
- aqueous washable
- double balanced mixer
- low price
- protected by US Patent 6,959,180

### Applications

- line of sight links
- satellite communications
- GSM
- DECT
- WiMAX

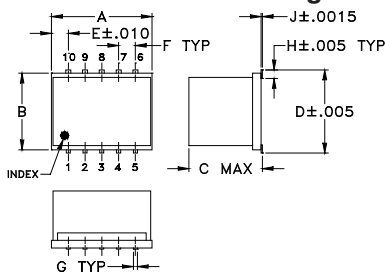
CASE STYLE: DZ883

PRICE: \$11.95 ea. QTY.(1-9)

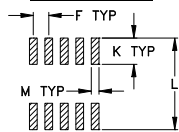
**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

### Outline Drawing



### PCB Land Pattern

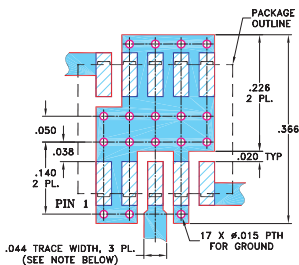


Suggested L layout, Tolerance to be within ±0.02

### Outline Dimensions (inch)

A	B	C	D	E	F	G
.30	.250	.190	.266	.050	.050	.012
7.62	6.35	4.83	6.76	1.27	1.27	0.30
H	J	K	L	M		wt
.029	.004	.085	.296	.030		grams
0.74	0.10	2.16	7.52	0.76		0.5

### Demo Board MCL P/N: TB-144 Suggested PCB Layout (PL-045)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

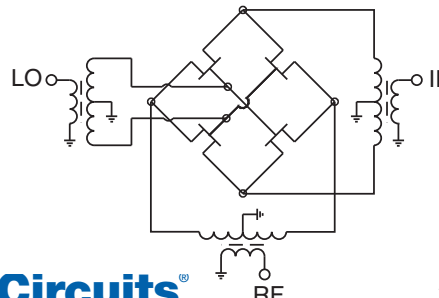
### Electrical Specifications (T<sub>AMB</sub>=-55°C to 100°C)

FREQUENCY (MHz)			IP3 (dBm)	RF in at 1 dB compr. (dBm)	CONVERSION LOSS (dB)		LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)	
RF	LO	IF	Typ.	Min.	Typ.	Max.	Typ.	Min.	Typ.	Min.
1670-3850	1420-3290	250-550	30	17	7.5	9.2	40	23	35	20

### Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)	IP3 (dBm)
RF	LO	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
1670.00	1421.50	7.71	39.50	35.73	1.76	2.89	22.46
1780.00	1516.00	7.55	52.16	35.14	1.68	2.78	24.27
1890.00	1610.50	7.45	45.64	34.26	1.57	2.65	25.04
2000.00	1705.00	7.84	40.82	34.32	1.54	2.54	24.54
2110.00	1799.50	7.69	37.11	34.63	1.76	2.49	24.91
2220.00	1894.00	7.41	33.06	34.07	1.79	2.52	26.54
2330.00	1988.50	7.23	28.06	30.94	1.75	2.49	25.46
2440.00	2083.00	7.52	32.10	30.06	1.54	2.59	28.00
2550.00	2177.50	7.22	36.84	32.11	1.49	2.90	33.16
2660.00	2272.00	6.97	40.12	34.01	1.49	3.14	34.07
2770.00	2366.50	7.03	41.35	36.03	1.43	3.32	28.54
2880.00	2461.00	6.96	41.67	34.27	1.36	3.49	26.46
2990.00	2555.50	7.46	45.75	31.50	1.33	3.96	28.52
3100.00	2650.00	7.33	51.69	30.84	1.31	4.54	29.43
3210.00	2744.50	7.05	57.06	31.22	1.35	4.91	30.37
3430.00	2933.50	7.42	47.34	30.46	1.63	4.50	31.66
3540.00	3028.00	7.59	44.13	30.39	1.89	3.59	31.75
3650.00	3122.50	7.58	43.37	28.16	2.17	2.77	33.93
3760.00	3217.00	7.64	44.78	26.53	2.33	2.30	29.49
3848.00	3292.60	7.97	44.26	27.11	2.49	1.97	26.63

### Electrical Schematic



**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

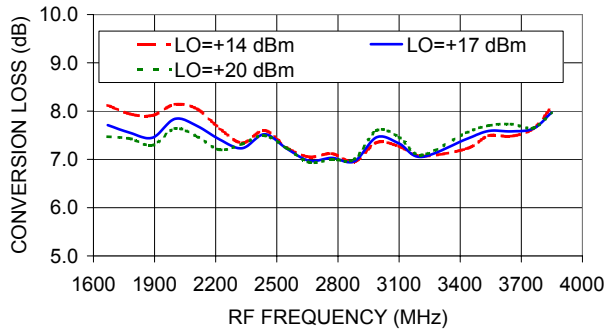
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

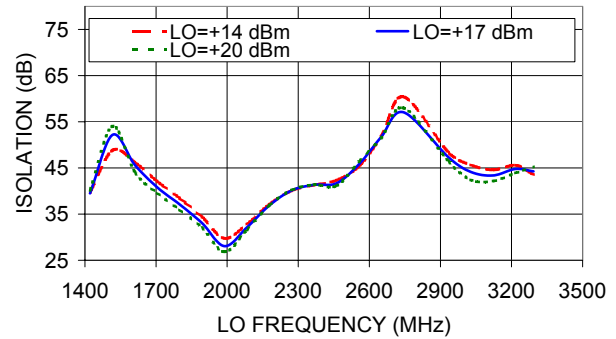
Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuits' applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

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M114913  
ED-12805/1  
MCA-3851FH+  
DJ/TD/CP/AM  
080305  
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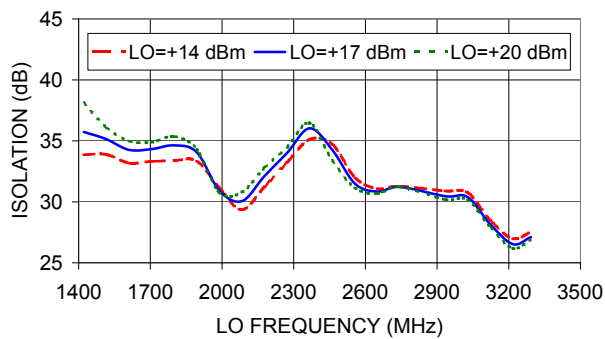
MCA-3851FH+  
CONVERSION LOSS



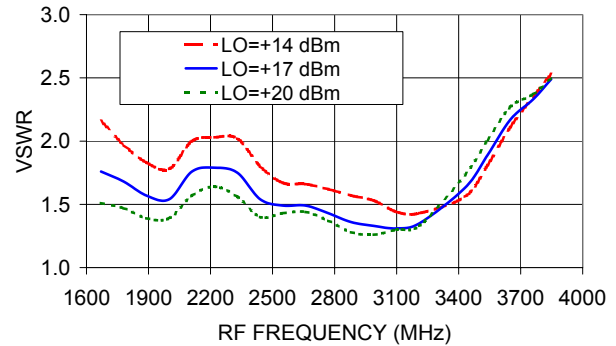
MCA-3851FH+  
L-R ISOLATION



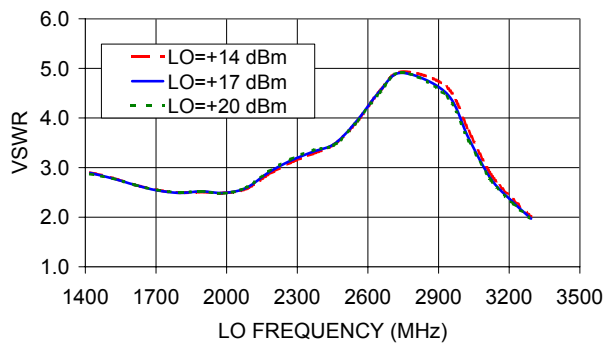
MCA-3851FH+  
L-I ISOLATION



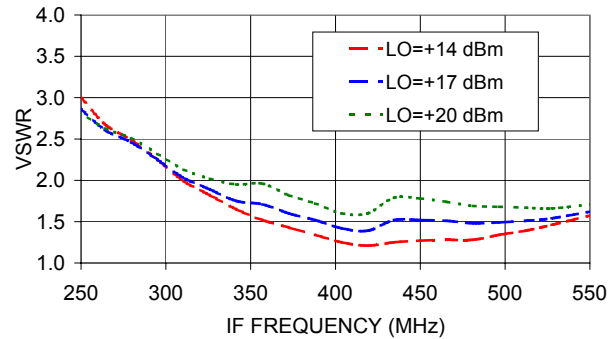
MCA-3851FH+  
RF VSWR



MCA-3851FH+  
LO VSWR



MCA-3851FH+  
IF VSWR



MCA-3851FH+  
IP3

